

## 6. Jordan

**Program Name:** Jordan.java

**Input File:** jordan.dat

Jordan just learned about Fibonacci numbers and how it is the worst type of problem to do with recursion. The Fibonacci sequence is where the next number is the sum of the previous two, beginning with 1 and 1, resulting in the sequence 1, 1, 2, 3, 5, 8, 13, 21, and so on. He has decided to write a problem with Fibonacci, since it is so common, but decided to add a twist. Instead of just doing a simple Fibonacci pattern, he decided to do the whole thing in base 17. The standard Fibonacci sequence in base 17 would be:

**1, 1, 2, 3, 5, 8, D(13<sub>10</sub>), 14(21<sub>10</sub>), and so on.**

For the value 8 in the sequence, the index position is 6 since it is the sixth value in the sequence. The index of 14<sub>17</sub> is 8.

To make it a bit more interesting, he also decided to give you a beginning two-number sequence other than the traditional 1 and 1, and then wants to know if a third target value is in the resulting base 17 Fibonacci-style version of the sequence. For example, if the first two values of the sequence were 4 and A, the Fibonacci-style base 17 sequence would be:

**4, A(10<sub>10</sub>), E(14<sub>10</sub>), 17(24<sub>10</sub>), 24(38<sub>10</sub>), 3B(62<sub>10</sub>), and so on.**

If the target value is 3B, clearly it is in the sixth position of the sequence. If the target value is 20<sub>17</sub>, it is not found in the sequence, but falls between 17<sub>17</sub> and 24<sub>17</sub>.

**Input:** The first line of the data file contains a count of the number of data sets. Each dataset will have three base 17 values. The first two represent the first two numbers in the base 17 Fibonacci sequence, the third the target. All base 17 numbers will be < 33D3D8307B214008<sub>17</sub>. The third number will always be greater than or equal to the second number in the sequence.

**Output:** Print either the base 10 index of the target number, or if the target is not in the sequence, the base 17 values in the sequence immediately before and after the target. All alpha characters in the base 17 values must be uppercased.

**Example Input:**

```
4
4 A 3B
4 A FF
1 3 12B3
3 B B94G3
```

**Example Output:**

```
6
F7 17G
C61 12GF
26
```